



# Cyber Domain Architecture

*Ensure US/Allied Freedom of Action in Cyberspace and  
Deny the Same to Our Adversaries*

6<sup>th</sup> Annual EA Conference  
11-15 April 2011  
Hampton, VA

**Thomas Lam**  
Office of the DoD CIO  
thomas.lam@osd.mil  
(703) 607-0597

UNCLASSIFIED

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>APR 2011</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2011 to 00-00-2011</b>	
4. TITLE AND SUBTITLE <b>Cyber Domain Architecture: Ensure US/Allied Freedom of Action in Cyberspace and Deny the Same to Our Adversaries</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Office of the DoD CIO, Washington, DC, 20301</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>Presented at the 6th Annual Department of Defense Enterprise Architecture Conference 2011 11-15 April 2011, Hampton, VA</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>6</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



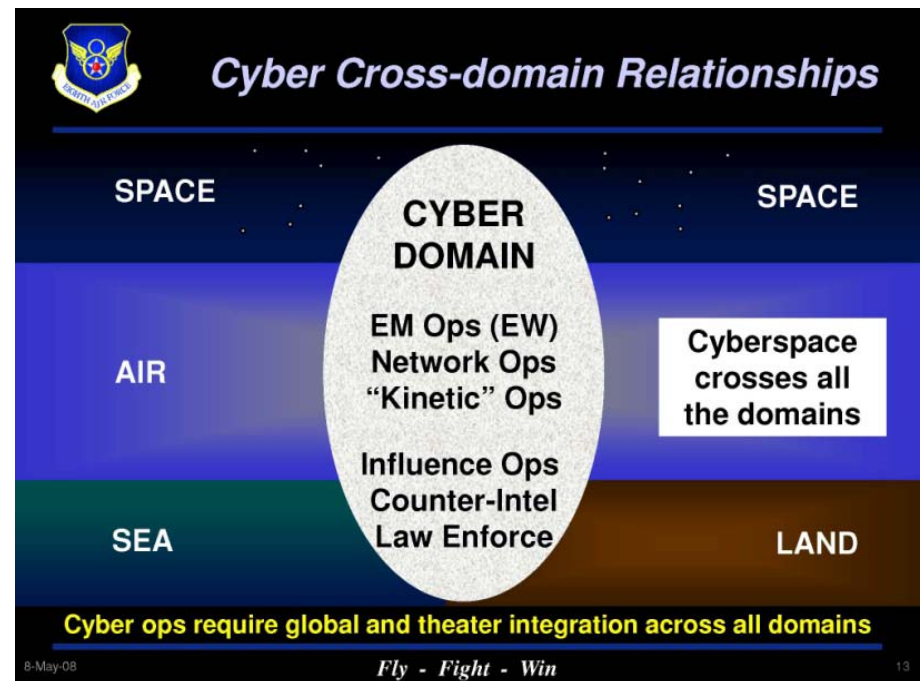
# CYBERSPACE DEFINED

## Cyberspace

- A global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.

## Cyberspace Operations

- The employment of cyber capabilities where the primary purpose is to achieve objectives in or through cyberspace. Such operations include computer network operations and activities to operate and defend the Global Information Grid.

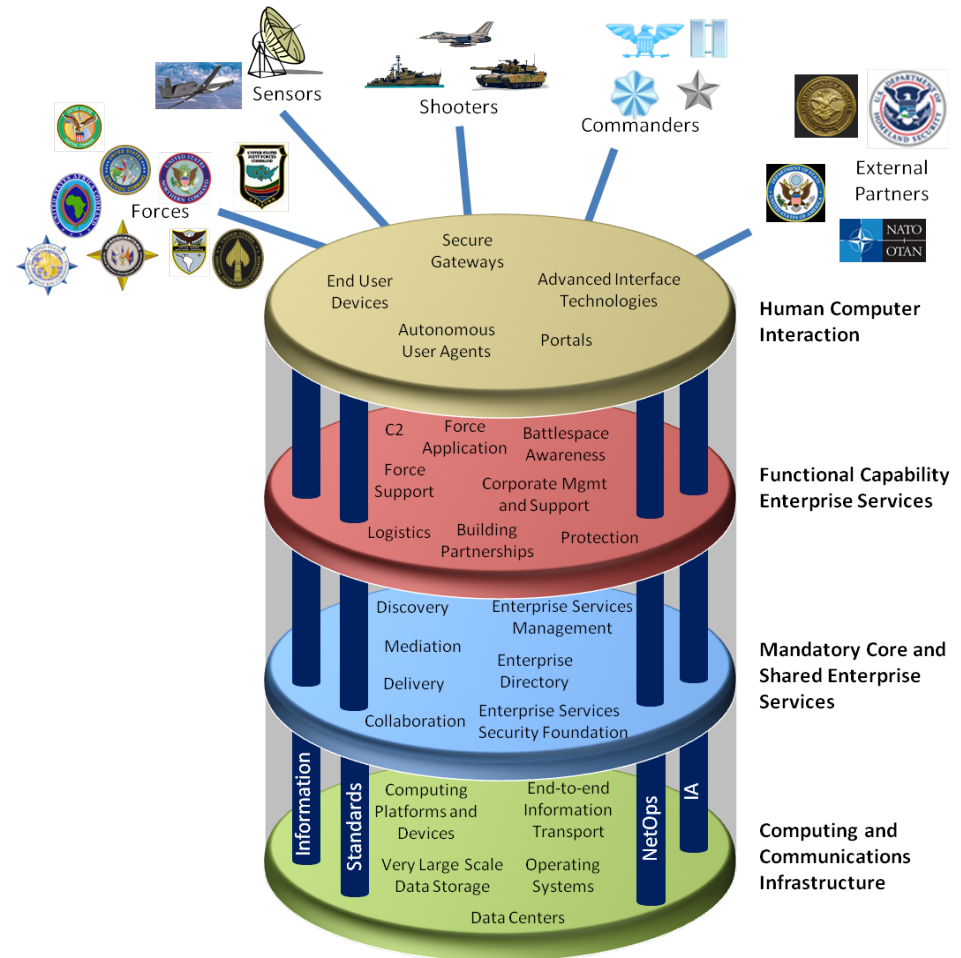




# CYBERSPACE ARCHITECTURE

- We must operate and defend cyberspace as an essential military asset
- Challenges include ever changing adversaries, disruptive technology, and resource constraints
- The complexity of cyberspace requires end-to-end integrated architectures to support the management of this dynamic environment

## IEOA Functional Vision





# END-TO-END INTEGRATION

- DoD GIG Ops, information assurance, and Defensive Cyber Operations are essential components in operating and defending DoD networks
- Integration of these architectures must occur across all layers of the infrastructure and across all phases of the IT lifecycle to enable synchronized situational awareness
- This situational awareness must support swift and actionable decisions in response to the needs of cyberspace operations



**DoD GIG Operations**  
**Information Assurance**  
**Defensive Cyber Operations**

UNCLASSIFIED





# PARTNERSHIP

**DoD CIO**  
Policy & Strategy

- A partnership between DoD CIO and DoD Components (including USCC) and the actionable decision structure in place need to enable the swift evolution of cyberspace in support of the warfighter and the end-to-end flow of information

**DoD Components**  
Architecture &  
Engineering

**USCYBERCOM**  
Cyberspace  
Operations

end-to-end flow of information

Headquarters

Command Centers

Tactical Units